

# *[ENHANCED EMBEDDED ELECTRONICS FOR WIRELESS TRANSMISSION AND RECEPTION OF AUDIO IN SUBWOOFER APPLICATIONS]*

## Abstract

The subwoofer category of audio component is the newest category for speaker systems. The idea of adding the deeper bass tones using a separate loudspeaker has been around for some time but the category only came to fruition with the promotion of the home theater. The home theater application has made no particular reference to placement of the subwoofer in the living environment but practical implementation says place it wherever it sounds best. The ambiguous acoustic conditions that exist in various locations preclude prediction or conclusions in a timely manner of the best location for placing the subwoofer in a room. If wiring was included as part of a custom installation to place a subwoofer in an environment it may be decided later that it is not the best location. It may be a requirement that an additional unit be located in a place not originally calculated or prepared for. It is

only an illusion to be capable of predicting the proper location and numbers of subwoofers to be optimum for a given installation. The locations will however be within the same space occupied by the main speakers making reliable relocation a simple process with a reliable wireless system. It is for this reason that predictable reliable wireless communication of the signal directly from the source via of RF transmission would be ideal as a staple communication for the subwoofer. This application focuses on the development of transmission and reception schemes that allow low power RF transmission already approved by most governments to be reliably embedded into consumer electronic entertainment systems. Focused technology for this application would permit large-scale acceptance of this technique to be included within the host component and subwoofer. Presently there exist thousands of allocated public RF transmission channels that can't be used reliably for any of their proposed usages. Distance from the transmitter both weakens the intended signal level and allows unwanted signals to capture control of the system receiver. Our application of electronic processing to optimize an RF transmission for very low audio frequencies while minimizing maximum transmission distance to within the same general enclosure insures extremely high reliability. The reliable wireless communication of the signal directly from the source via of RF transmission

would be ideal as a staple communication for the subwoofer. Specific RF enhancement circuits are not mentioned in this application and are not the subject of any claims.